

What is claimed is:

1. An isolated *Bifidobacterium* having the characteristics of strain RecB1.

2. An isolated *Bifidobacterium* having the characteristics of strain RecB4.

3. An isolated *Bifidobacterium* having the characteristics of strain J1.

4. An isolated *Bifidobacterium* having the characteristics of strain J2.

5. An isolated *Bifidobacterium* having the characteristics of strain J4.

6. An isolated *Bifidobacterium* having the characteristics of strain P1.

7. An isolated *Bifidobacterium* having the characteristics of strain 6A.

8. An isolated *Bifidobacterium* having the characteristics of strain 10A.

9. A method for inhibiting the replication of a microbe in the gastrointestinal tract of an animal, comprising administering to an animal a *Bifidobacterium* that secretes a siderophore, and measuring the presence of the microbe in the gastrointestinal tract, where a decrease in the presence of the microbe in the animal after administration of the *Bifidobacterium* indicates inhibition of the replication of the microbe.

10. The method of claim 9 further comprising growing the *Bifidobacterium* under iron limited conditions before administration.

11. The method of claim 10 wherein growing the *Bifidobacterium* under iron limited conditions comprises growth in the presence of an iron chelator.

12. The method of claim 9 wherein the animal is a human.

13. The method of claim 9 wherein the microbe is a prokaryotic microbe.

14. The method of claim 13 wherein the prokaryotic microbe is selected from the group consisting of *E. coli*, *Salmonella* spp., *Shigella* spp., *Campylobacter* spp., *Clostridium difficile*, and *Clostridium perfringens*.

15. The method of claim 9 wherein the gastrointestinal tract is the large intestine.

16. A method for treating a lactase deficiency, comprising administering to an animal a *Bifidobacterium* that secretes a siderophore, and detecting the presence of unabsorbed lactose in the gastrointestinal tract, where a decrease in the presence of unabsorbed lactose after administration of the *Bifidobacterium* indicates treatment of the lactase deficiency.

17. The method of claim 16 further comprising growing the *Bifidobacterium* under iron limited conditions before administration.

18. The method of claim 16 wherein the animal is a human.

19. The method of claim 16 wherein the gastrointestinal tract is the large intestine.

20. A method for establishing a *Bifidobacterium* flora in the gastrointestinal tract of an animal comprising administering to an animal a *Bifidobacterium* that secretes a siderophore, and measuring the presence of the *Bifidobacterium* in the gastrointestinal tract of the animal after administration.

21. The method of claim 20 further comprising growing the *Bifidobacterium* under iron limited conditions before administration.

22. The method of claim 20 wherein the gastrointestinal tract is the large intestine.

23. The method of claim 20 wherein the animal is a human. *fw of art*

24. The method of claim 23 wherein the human is an infant selected from the group consisting of an immature infant, a premature infant, and a mature infant. *fw of art*

25. The method of claim 23 wherein the administration occurs after the human has undergone antibiotic therapy. *fw of art*

26. The method of claim 23 wherein the administration occurs after the human has undergone chemotherapy. *fw of art*

27. A method for preventing the replication of microbes in a food, the method comprising adding to the food a *Bifidobacterium* that secretes siderophore.

28. A method for decreasing the risk of colon cancer comprising administering to an animal a *Bifidobacterium* that secretes a siderophore, and detecting the presence of aberrant crypt foci in the colon of the animal, where a lower number of aberrant crypt foci relative to an animal not administered the *Bifidobacterium* indicates a decrease in the risk of colon cancer. *fw of art A2*

29. A composition for inhibiting the replication of a microbe in the gastrointestinal tract of an animal, the composition comprising a *Bifidobacterium* that secretes siderophore.

30. A method for obtaining a siderophore from a *Bifidobacterium*, the method comprising incubating a *Bifidobacterium* under iron limited conditions, and isolating the siderophore.

31. A method for preparing a siderophore, the method comprising incubating a *Bifidobacterium* under iron limited conditions, and sterilizing the culture.

32. The method of claim 31 wherein the culture is sterilized by removing essentially all water from the culture.

Sul 23

33. A composition comprising a siderophore obtained from a *Bifidobacterium*, wherein the composition is sterile.

34. An isolated siderophore obtained from a *Bifidobacterium*.

35. An isolated siderophore that binds Fe²⁺, the siderophore obtained from a *Bifidobacterium*.

Dep. Atty. Office, Atlanta

36. A method for decreasing the amount of free iron in a composition, the method comprising adding to a composition a siderophore obtained from a *Bifidobacterium*.

on

37. A method for decreasing the amount of free iron in a composition, the method comprising adding to a composition an isolated siderophore obtained from a *Bifidobacterium*.

on

38. A method for inhibiting the replication of a microbe in a composition, the method comprising adding to a composition a siderophore obtained from a *Bifidobacterium*.

on

39. A method for inhibiting the replication of a microbe in a composition, the method comprising adding to a composition an isolated siderophore obtained from a *Bifidobacterium*.

40. A method for altering the expression of a siderophore in a *Bifidobacterium*, the method comprising incubating under iron limited conditions a *Bifidobacterium* that does not secrete a siderophore, and selecting for a *Bifidobacterium* that replicates in the iron limited condition.

Add a5

Add BF